

AMENDMENTS TO THE CLAIMS:

Please add new Claims 53-66 to read as follows:

Claims 1-15 (Cancelled).

16. (Previously Presented) A method of stimulating the immune system of a human to produce an HIV-1 immune response, comprising administering to the human the combination of:

a) at least one peptide that comprises at least nine consecutive amino acid residues of the sequence Xaa<sub>1</sub> Xaa<sub>2</sub> Xaa<sub>3</sub> Xaa<sub>4</sub> Xaa<sub>5</sub> Xaa<sub>6</sub> Ala Xaa<sub>8</sub> Xaa<sub>9</sub> Gln Thr Pro Trp Xaa<sub>14</sub> Xaa<sub>15</sub> Xaa<sub>16</sub> Xaa<sub>17</sub> Xaa<sub>18</sub> Val Xaa<sub>20</sub> (SEQ ID NO. 1),

wherein Xaa in position 1 is Lys or Arg,

Xaa in position 2 is Ala, Gly, Ser or Arg,

Xaa in position 3 is Leu or Met,

Xaa in position 4 is Gly or Arg,

Xaa in position 5 is Pro, Thr, Val, Ser, Gln or Ala,

Xaa in position 6 is Gly, Ala, Lys, Arg, Gln or Glu,

Xaa in position 8 is Thr or Ser,

Xaa in position 9 is Leu or Ile,

Xaa in position 14 is Thr, Ser or Val,

Xaa in position 15 is Ala or Ser,

Xaa in position 16 is Cys or Ser,

Xaa in position 17 is Gln or Leu,

Xaa in position 18 is Gly, Glu or Arg, and

Xaa in position 20 is Gly or Arg;

b) at least one peptide that comprises at least six consecutive amino acid residues of the sequence Xaa<sub>1</sub> Xaa<sub>2</sub> Xaa<sub>3</sub> Xaa<sub>4</sub> Xaa<sub>5</sub> Gly Leu Asn Pro Leu Val [Gly]<sub>n</sub> Xaa<sub>12</sub> Xaa<sub>13</sub> Tyr Xaa<sub>15</sub> Pro Xaa<sub>17</sub> Xaa<sub>18</sub> Ile Leu Xaa<sub>21</sub> Xaa<sub>22</sub> (SEQ ID NO. 4),

wherein Xaa in position 1 is Arg, Lys, Asp or none,

Xaa in position 2 is Trp, Gly, Lys or Arg,

Xaa in position 3 is Ile, Leu, Val or Met,

Xaa in position 4 is Ile, Val or Leu,

Xaa in position 5 is Leu, Met, Val or Pro,

Xaa in position 12 is Arg or Lys,

Xaa in position 13 is Met or Leu,

Xaa in position 15 is Ser, Cys or Gln,

Xaa in position 17 is Thr, Val, Ile, Ser or Ala,

Xaa in position 18 is Ser, Gly or Thr,

Xaa in position 21 is Asp, Glu, Cys or Gly, and

Xaa in position 22 is Gly or none,

and wherein n = 0, 1, 2 or 3;

c) at least one peptide that comprises at least six consecutive amino acid residues of the sequence Xaa<sub>1</sub> Xaa<sub>2</sub> Xaa<sub>3</sub> Pro Ile Pro Xaa<sub>7</sub> Xaa<sub>8</sub> Xaa<sub>9</sub> Xaa<sub>10</sub> Xaa<sub>11</sub> Xaa<sub>12</sub> [Gly]<sub>n</sub> Xaa<sub>13</sub> Xaa<sub>14</sub> Xaa<sub>15</sub> Xaa<sub>16</sub> Xaa<sub>17</sub> Xaa<sub>18</sub> Xaa<sub>19</sub> Xaa<sub>20</sub> Xaa<sub>21</sub> Xaa<sub>22</sub> Xaa<sub>23</sub> Xaa<sub>24</sub> (SEQ ID NO. 9),

wherein Xaa in position 1 is Asn, Ser, Gly, His, Ala, Pro, Arg or none,

Xaa in position 2 is Asn, Ala or Lys,  
Xaa in position 3 is Pro, Gln, Gly, Ile or Leu,  
Xaa in position 7 is Val or Ala,  
Xaa in position 8 is Gly or Lys,  
Xaa in position 9 is Glu, Asp, Lys, Phe or Thr,  
Xaa in position 10 is Ile, Met, Val or Leu,  
Xaa in position 11 is Tyr, Leu or none,  
Xaa in position 12 is Ser or none,  
Xaa in position 13 is Arg or none,  
Xaa in position 14 is Asp, Arg, Trp, Ala or none,  
Xaa in position 15 is Ile or none,  
Xaa in position 16 is Tyr or none,  
Xaa in position 17 is Lys or Arg,  
Xaa in position 18 is Arg, Lys or Asp,  
Xaa in position 19 is Trp or Gly,  
Xaa in position 20 is Ile, Met, Val, Gln or Ala,  
Xaa in position 21 is Ile, Val or Ala,  
Xaa in position 22 is Leu, Met or Val,  
Xaa in position 23 is Gly or Cys, and  
Xaa in position 24 is Leu or none, and  
wherein n = 1, 2 or 3; and

d) at least one peptide selected from the group consisting of SEQ ID

NO: 16, SEQ ID NO: 17, SEQ ID NO: 18, SEQ ID NO: 19 and SEQ ID NO: 20.

17. (Previously Presented) A method according to claim 16, wherein each of said peptides a, b, and c consists of up to 50 amino acid residues.

18. (Previously Presented) A method according to claim 16, wherein all of the amino acid residues of said peptides a, b, c, and d are in the L form.

19. (Previously Presented) A method according to claim 16, wherein at least two of said peptides a, b, c, and d are linked together through an inter- or intra-molecular bond that is a  $-S-(CH_2)_p-S-$  bridge or a  $-(CH_2)_p-$  bridge wherein  $p = 1-8$  optionally intervened by one or more heteroatoms selected from the group consisting of O, N and S.

20. (Previously Presented) A method according to claim 16, wherein the combination of peptides is administered with one or more cytokines.

21. (Previously Presented) A method according to claim 16, wherein said peptides a, b, c, and d are administered while dissolved in saline water and are administered in combination with a granulocyte macrophage growth factor.

22. (Previously Presented) A method according to claim 16, wherein the combination of peptides is administered with an adjuvant selected from the group consisting of Monophosphoryl Lipid A, Freund's complete or incomplete adjuvant, and aluminum hydroxide.

23. (Previously Presented) A method according to claim 16, wherein the ratio of peptides a/b/c/d in the combination is 1/1/1/1.

24. (Previously Presented) A method according to claim 16, wherein the combination of peptides is administered in the form of a dosage unit that provides 1 µg to 1 mg of each of said peptides a, b, c, and d per kg of bodyweight of the human.

25. (Previously Presented) The method according to claim 24, wherein the administration of said dosage unit is performed at least three times.

26. (Previously Presented) The method according to claim 25, wherein said dosage unit provides 2 µg to 0.15 mg of each of said peptides a, b, c, and d per kg of bodyweight of the human.

27. (Previously Presented) A method according to claim 26, wherein the dosage unit is in the form of a sterile sodium chloride solution and the administration is by injection.

28. (Previously Presented) A method according to any one of claims 16-27, wherein said peptide a is SEQ ID NO. 3.

29. (Previously Presented) A method according to any one of claims 16-27, wherein said peptide b is SEQ ID NO. 6.

30. (Previously Presented) A method according to any one of claims 16-27, wherein said peptide c is SEQ ID NO. 11.

31. (Previously Presented) A method according to any one of claims 16-27, wherein said peptide d is SEQ ID NO. 18.

32. (Previously Presented) A method according to any one of claims 16-27, wherein said peptide a is SEQ ID NO. 3, said peptide b is SEQ ID NO. 6, said peptide c is SEQ ID NO. 11, and said peptide d is SEQ ID No. 18.

33. (Previously Presented) A method of stimulating the immune system of a human to produce an HIV-1 immune response, comprising administering to the human a pharmaceutical composition comprising at least one peptide selected from the group consisting of SEQ ID NO: 16, SEQ ID NO: 17, SEQ ID NO: 18, SEQ ID NO: 19 and SEQ ID NO: 20, and a pharmaceutically acceptable diluent.

34. (Cancelled).

35. (Previously Presented) The method according to claim 33, wherein all of the amino acid residues of said peptide are in the L form.

36. (Cancelled).

37. (Previously Presented) The method according to claim 33, wherein the pharmaceutical composition is administered in conjunction with the administration of one or more cytokines.

38. (Previously Presented) The method according to claim 33, wherein said peptide is dissolved in saline water and the pharmaceutical composition is administered in conjunction with a granulocyte macrophage growth factor.

39. (Previously Presented) The method according to claim 33, wherein the pharmaceutical composition comprises an adjuvant selected from the group consisting of Monophosphoryl Lipid A, Freund's complete or incomplete adjuvant, and aluminum hydroxide.

40. (Previously Presented) The method according to claim 33, wherein the pharmaceutical composition is administered in the form of a dosage unit that provides 1  $\mu$ g to 1 mg of said peptide per kg of bodyweight of the human.

41. (Previously Presented) The method according to claim 40, wherein the administration of said dosage unit is performed at least three times.

42. (Previously Presented) The method according to claim 41, wherein said dosage unit provides 2  $\mu$ g to 0.15 mg of said peptide per kg of bodyweight of the human.

43. (Previously Presented) The method according to claim 42, wherein the pharmaceutical composition is in the form of a sterile sodium chloride solution and the administration is by injection.

44. (Previously Presented) The method according to any one of claims 33 or 37-43, wherein said at least one peptide is SEQ ID NO. 18.

45. (Previously Presented) An isolated peptide selected from the group consisting of SEQ ID NO: 16, SEQ ID NO: 17, SEQ ID NO: 18, SEQ ID NO: 19 and SEQ ID NO: 20.

46. (Cancelled).

47. (Previously Presented) The isolated peptide according to claim 45, wherein all of the amino acid residues of said peptide are in the L form.

48. (Cancelled).

49. (Previously Presented) The peptide of claim 45, wherein the peptide is SEQ ID NO. 18.



50. (Previously Presented) The peptide of claim 49, wherein the terminal ends of the peptide are selected from the group consisting of free carboxyl groups, amino groups, and amides.

51. (Previously Presented) The peptide of claim 49, wherein the peptide is immobilized to a solid support.

52. (Previously Presented) The peptide of claim 50, wherein the peptide is immobilized to a solid support.

53. (New) A pharmaceutical composition for stimulating the immune system of a human to produce an HIV-1 immune response, comprising:

a) at least one peptide that comprises at least nine consecutive amino acid residues of the sequence Xaa<sub>1</sub> Xaa<sub>2</sub> Xaa<sub>3</sub> Xaa<sub>4</sub> Xaa<sub>5</sub> Xaa<sub>6</sub> Ala Xaa<sub>8</sub> Xaa<sub>9</sub> Gln Thr Pro Trp Xaa<sub>14</sub> Xaa<sub>15</sub> Xaa<sub>16</sub> Xaa<sub>17</sub> Xaa<sub>18</sub> Val Xaa<sub>20</sub> (SEQ ID NO. 1),

wherein Xaa in position 1 is Lys or Arg,

Xaa in position 2 is Ala, Gly, Ser or Arg,

Xaa in position 3 is Leu or Met,

Xaa in position 4 is Gly or Arg,

Xaa in position 5 is Pro, Thr, Val, Ser, Gln or Ala,

Xaa in position 6 is Gly, Ala, Lys, Arg, Gln or Glu,

Xaa in position 8 is Thr or Ser,

Xaa in position 9 is Leu or Ile,

Xaa in position 14 is Thr, Ser or Val,

Xaa in position 15 is Ala or Ser,

Xaa in position 16 is Cys or Ser,

Xaa in position 17 is Gln or Leu,

Xaa in position 18 is Gly, Glu or Arg, and

Xaa in position 20 is Gly or Arg;

b) at least one peptide that comprises at least six consecutive amino acid residues of the sequence Xaa<sub>1</sub> Xaa<sub>2</sub> Xaa<sub>3</sub> Xaa<sub>4</sub> Xaa<sub>5</sub> Gly Leu Asn Pro Leu Val [Gly]<sub>n</sub> Xaa<sub>12</sub> Xaa<sub>13</sub> Tyr Xaa<sub>15</sub> Pro Xaa<sub>17</sub> Xaa<sub>18</sub> Ile Leu Xaa<sub>21</sub> Xaa<sub>22</sub> (SEQ ID NO. 4),

wherein Xaa in position 1 is Arg, Lys, Asp or none,

Xaa in position 2 is Trp, Gly, Lys or Arg,

Xaa in position 3 is Ile, Leu, Val or Met,

Xaa in position 4 is Ile, Val or Leu,

Xaa in position 5 is Leu, Met, Val or Pro,

Xaa in position 12 is Arg or Lys,

Xaa in position 13 is Met or Leu,

Xaa in position 15 is Ser, Cys or Gln,

Xaa in position 17 is Thr, Val, Ile, Ser or Ala,

Xaa in position 18 is Ser, Gly or Thr,

Xaa in position 21 is Asp, Glu, Cys or Gly, and

Xaa in position 22 is Gly or none,

and wherein n = 0, 1, 2 or 3;

c) at least one peptide that comprises at least six consecutive amino acid residues of the sequence Xaa<sub>1</sub> Xaa<sub>2</sub> Xaa<sub>3</sub> Pro Ile Pro Xaa<sub>7</sub> Xaa<sub>8</sub> Xaa<sub>9</sub> Xaa<sub>10</sub> Xaa<sub>11</sub> Xaa<sub>12</sub> [Gly]<sub>n</sub> Xaa<sub>13</sub> Xaa<sub>14</sub> Xaa<sub>15</sub> Xaa<sub>16</sub> Xaa<sub>17</sub> Xaa<sub>18</sub> Xaa<sub>19</sub> Xaa<sub>20</sub> Xaa<sub>21</sub> Xaa<sub>22</sub> Xaa<sub>23</sub> Xaa<sub>24</sub> (SEQ ID NO. 9),

wherein Xaa in position 1 is Asn, Ser, Gly, His, Ala, Pro, Arg or none,

Xaa in position 2 is Asn, Ala or Lys,

Xaa in position 3 is Pro, Gln, Gly, Ile or Leu,

Xaa in position 7 is Val or Ala,

Xaa in position 8 is Gly or Lys,

Xaa in position 9 is Glu, Asp, Lys, Phe or Thr,

Xaa in position 10 is Ile, Met, Val or Leu,

Xaa in position 11 is Tyr, Leu or none,

Xaa in position 12 is Ser or none,

Xaa in position 13 is Arg or none,

Xaa in position 14 is Asp, Arg, Trp, Ala or none,

Xaa in position 15 is Ile or none,

Xaa in position 16 is Tyr or none,

Xaa in position 17 is Lys or Arg,

Xaa in position 18 is Arg, Lys or Asp,

Xaa in position 19 is Trp or Gly,

Xaa in position 20 is Ile, Met, Val, Gln or Ala,

Xaa in position 21 is Ile, Val or Ala,

Xaa in position 22 is Leu, Met or Val,

Xaa in position 23 is Gly or Cys, and

Xaa in position 24 is Leu or none, and

wherein  $n = 1, 2$  or  $3$ ; and

d) at least one peptide selected from the group consisting of SEQ ID NO: 16, SEQ ID NO: 17, SEQ ID NO: 18, SEQ ID NO: 19 and SEQ ID NO: 20.

54. (New) The pharmaceutical composition according to claim 53, wherein each of said peptides a, b, and c consists of up to 50 amino acid residues.

55. (New) The pharmaceutical composition according to claim 53, wherein all of the amino acid residues of said peptides a, b, c, and d are in the L form.

56. (New) The pharmaceutical composition according to claim 53, wherein at least two of said peptides a, b, c, and d are linked together through an inter- or intra-molecular bond that is a  $-S-(CH_2)_p-S-$  bridge or a  $-(CH_2)_p-$  bridge wherein  $p = 1-8$  optionally intervened by one or more heteroatoms selected from the group consisting of O, N and S.

57. (New) The pharmaceutical composition according to claim 53, further comprising one or more cytokines.

58. (New) The pharmaceutical composition according to claim 53, further comprising a granulocyte macrophage growth factor.

59. (New) The pharmaceutical composition according to claim 53, further comprising an adjuvant selected from the group consisting of Monophosphoryl Lipid A, Freund's complete or incomplete adjuvant, and aluminum hydroxide.

60. (New) The pharmaceutical composition according to claim 53, wherein the ratio of peptides a/b/c/d in the composition is 1/1/1/1.

61. (New) The pharmaceutical composition according to claim 53, wherein the composition is in the form of a sterile sodium chloride solution.

62. (New) The pharmaceutical composition according to any one of claims 53-61, wherein said peptide a is SEQ ID NO. 3.

63. (New) The pharmaceutical composition according to any one of claims 53-61, wherein said peptide b is SEQ ID NO. 6.

64. (New) The pharmaceutical composition according to any one of claims 53-61, wherein said peptide c is SEQ ID NO. 11.

65. (New) The pharmaceutical composition according to any one of claims 53-61, wherein said peptide d is SEQ ID NO. 18.

66. (New) The pharmaceutical composition according to any one of claims 53-61, wherein said peptide a is SEQ ID NO. 3, said peptide b is SEQ ID NO. 6, said peptide c is SEQ ID NO. 11, and said peptide d is SEQ ID No. 18.